O/PE oj9o

Serial Number: 09/910,082A   **ENTERED**

CRF Processing Date: 1/15/2002 9lD
Edited by: A.
Verified by: /AL (STIC staff)

- [ ] Changed a file from non-ASCII to ASCII

- [ ] Changed the margins in cases where the sequence text was "wrapped" down to the next line.

- [ ] Edited a format error in the Current Application Data section, specifically:

  _____

- [ ] Edited the Current Application Data section with the actual current number. The number inputted by the applicant was [ ] the prior application data; or [ ] other _____.

- [ ] Added the mandatory heading and subheadings for "Current Application Data".

- [ ] Edited the "Number of Sequences" field. The applicant spelled out a number instead of using an integer.

- [ ] Changed the spelling of a mandatory field (the headings or subheadings), specifically:

  _____

- [ ] Corrected the SEQ ID NO when obviously incorrect. The sequence numbers that were edited were:

  _____

- [ ] Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:

  _____

- [ ] Corrected subheading placement. All responses must be on the same line as each subheading. If the applicant placed a response below the subheading, this was moved to its appropriate place.

- [ ] Inserted colons after headings/subheadings. Headings edited included:

  _____

- [ ] Deleted extra, invalid, headings used by an applicant, specifically:

  _____

- [ ] Deleted: [ ] non-ASCII "garbage" at the beginning/end of files; [ ] secretary initials/filename at end of file; [ ] page numbers throughout text; [ ] other invalid text, such as_____ .

- [ ] Inserted mandatory headings, specifically: _____

- [ ] Corrected an obvious error in the response, specifically:

  _____

- [ ] Edited identifiers where upper case is used but lower case is required, or vice versa.

- [ ] Corrected an error in the Number of Sequences field, specifically:

  _____

- [ ] A "Hard Page Break" code was inserted by the applicant. All occurrences had to be deleted.

- [ ] Deleted *ending* stop codon in amino acid sequences and adjusted the "(A)Length:" field accordingly (error due to a PatentIn bug). Sequences corrected: _____

- [✓] Other: Seqs 54, 134, 16, 185 — moved <223> response up one line

  _____

  _____

*Examiner: Th abov corrections must be communicated to th applicant in the first Office Action. DO NOT send a copy of this form.

3/1/95

RAW SEQUENCE LISTING   DATE: 01/15/2002
PATENT APPLICATION: US/09/910,082A   TIME: 20:22:54

Input Set : A:\PTO.AMC.txt
Output Set: N:\CRF3\01152002\I910082A.raw   p.5

```
 3 <110> APPLICANT: University of Utah Research Foundation
 4        Cognetix, Inc.
 5        Olivera, Baldomero M.
 6        McIntosh, J. Michael
 7        Watkins, Maren
 8        Garrett, James E.
 9        Shon, Ki-Joon
10        Jacobsen, Richard
11        Jones, Robert M.
12        Cartier, G. Edward
14 <120> TITLE OF INVENTION: Omega-Conopeptides
16 <130> FILE REFERENCE: 2314-241
C--> 18 <140> CURRENT APPLICATION NUMBER: US/09/910,082A
C--> 18 <141> CURRENT FILING DATE: 2001-07-23
18 <150> PRIOR APPLICATION NUMBER: US 60/219,616
19 <151> PRIOR FILING DATE: 2000-07-21
21 <150> PRIOR APPLICATION NUMBER: US 60/265,888
22 <151> PRIOR FILING DATE: 2001-02-05
24 <160> NUMBER OF SEQ ID NOS: 413
26 <170> SOFTWARE: PatentIn version 3.0
28 <210> SEQ ID NO: 1
29 <211> LENGTH: 318
30 <212> TYPE: DNA
31 <213> ORGANISM: Unknown
33 <220> FEATURE:
34 <223> OTHER INFORMATION: unknown Conus species
36 <400> SEQUENCE: 1
37 ggatccatga aactgacgtg catggtgatc gtcgccgtgc tgctcctgac ggcctgtcaa      60
39 ctcatcacag ctgatgactc cagaggtacg cagaagcatc atgccctgag gtcgaccacc     120
41 aatttctcca cgttgactcg tcgctgcctt tctcccggat cacgatgtca taagacaatg     180
43 cgtaactgct gcacttcatg ctcttcatac aaagggaaat gtcggcctcg aaaatgaacc     240
45 actcatcacc tactcctctg gaggcctcag aggaattaca ttgaaataaa agccgcatta     300
47 caaaaaaaaa aaaaaaaa                                                    318
50 <210> SEQ ID NO: 2
51 <211> LENGTH: 76
52 <212> TYPE: PRT
53 <213> ORGANISM: Unknown
55 <220> FEATURE:
56 <223> OTHER INFORMATION: unknown Conus species
58 <400> SEQUENCE: 2
60 Met Lys Leu Thr Cys Met Val Ile Val Ala Val Leu Leu Leu Thr Ala
61 1               5                  10                  15
63 Cys Gln Leu Ile Thr Ala Asp Asp Ser Arg Gly Thr Gln Lys His His
64                 20                  25                  30
66 Ala Leu Arg Ser Thr Thr Asn Phe Ser Thr Leu Thr Arg Arg Cys Leu
67             35                  40                  45
69 Ser Pro Gly Ser Arg Cys His Lys Thr Met Arg Asn Cys Cys Thr Ser
```

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PATENT APPLICATION: US/09/910,082A   TIME: 20:22:54

Input Set : A:\PTO.AMC.txt
Output Set: N:\CRF3\01152002\I910082A.raw

```
70      50                     55                    60
72 Cys Ser Ser Tyr Lys Gly Lys Cys Arg Pro Arg Lys
73 65                70                   75
75 <210> SEQ ID NO: 3
76 <211> LENGTH: 30
77 <212> TYPE: PRT
78 <213> ORGANISM: Unknown
80 <220> FEATURE:
81 <223> OTHER INFORMATION: unknown Conus species
83 <220> FEATURE:
84 <221> NAME/KEY: PEPTIDE
85 <222> LOCATION: (1)..(30)
86 <223> OTHER INFORMATION: Xaa at residue 4 and 28 is Pro or Hyp; Xaa at residue 22 is
Tyr,
87       125I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or O-phospho-T
88       yr
91 <400> SEQUENCE: 3
93 Cys Leu Ser Xaa Gly Ser Arg Cys His Lys Thr Met Arg Asn Cys Cys
94 1            5                   10                  15
96 Thr Ser Cys Ser Ser Xaa Lys Gly Lys Cys Arg Xaa Arg Lys
97              20                  25                  30
99 <210> SEQ ID NO: 4
100 <211> LENGTH: 283
101 <212> TYPE: DNA
102 <213> ORGANISM: Unknown
104 <220> FEATURE:
105 <223> OTHER INFORMATION: unknown Conus species
107 <400> SEQUENCE: 4
108 ggatccatga aactgacgtg cgtggtgatc gtcgccgtgc tgctcctgac ggtctgtcaa    60
110 ctcatcacag ctgatgactc cagaggtacg cagaagcatc atgccctgag gtcgaccacc   120
112 aatttctcca cgtcgactcg tcgctgcaaa cctcccggaa gaaaatgtct gaatagaaag   180
114 aatgaatgct gcagcaagtt ttgcaatgaa cacctacata tgtgtggata aatggctaaa   240
116 aactgaataa aagccgcatt gcaaaaaaaa aaaaaaaaaa aaa                     283
119 <210> SEQ ID NO: 5
120 <211> LENGTH: 74
121 <212> TYPE: PRT
122 <213> ORGANISM: Unknown
124 <220> FEATURE:
125 <223> OTHER INFORMATION: unknown Conus species
127 <400> SEQUENCE: 5
129 Met Lys Leu Thr Cys Val Val Ile Val Ala Val Leu Leu Leu Thr Val
130 1               5                   10                  15
132 Cys Gln Leu Ile Thr Ala Asp Asp Ser Arg Gly Thr Gln Lys His His
133              20                  25                  30
135 Ala Leu Arg Ser Thr Thr Asn Phe Ser Thr Ser Thr Arg Arg Cys Lys
136          35                  40                  45
138 Pro Pro Gly Arg Lys Cys Leu Asn Arg Lys Asn Glu Cys Cys Ser Lys
139      50                  55                  60
141 Phe Cys Asn Glu His Leu His Met Cys Gly
142 65                  70
```

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                        Input Set : A:\PTO.AMC.txt
                        Output Set: N:\CRF3\01152002\I910082A.raw

144 <210> SEQ ID NO: 6
145 <211> LENGTH: 27
146 <212> TYPE: PRT
147 <213> ORGANISM: Unknown
149 <220> FEATURE:
150 <223> OTHER INFORMATION: unknown Conus species
152 <220> FEATURE:
153 <221> NAME/KEY: PEPTIDE
154 <222> LOCATION: (1)..(27)
155 <223> OTHER INFORMATION: Xaa at residue 14 and 22 is Glu or gamma-carboxy Glu; Xaa at
resi
156         due 3 and 4 is Pro or Hyp
159 <400> SEQUENCE: 6
161 Cys Lys Xaa Xaa Gly Arg Lys Cys Leu Asn Arg Lys Asn Xaa Cys Cys
162 1               5                   10                  15
164 Ser Lys Phe Cys Asn Xaa His Leu His Met Cys
165             20                  25
167 <210> SEQ ID NO: 7
168 <211> LENGTH: 275
169 <212> TYPE: DNA
170 <213> ORGANISM: Unknown
172 <220> FEATURE:
173 <223> OTHER INFORMATION: unknown Conus species
175 <400> SEQUENCE: 7
176 ggatccatga aactgacgtg cgtggtgatc gtcgccgtgc tgctcctgac ggcctgtcaa      60
178 ctcgtcacag ctgatggctc cagaggtatg cagaagcatt atgccctgag gtcgaccacc     120
180 aatctctcca tatcgtctcg ctgcaaacct cccagaagaa aatgtctgaa gattaaggat     180
182 aaatgctgca acttttgcaa tacacaccta aatatgtgtg gataaatggc taaaaactga     240
184 ataaaagccg cattgcaaaa aaaaaaaaaa aaaaa                                275
187 <210> SEQ ID NO: 8
188 <211> LENGTH: 72
189 <212> TYPE: PRT
190 <213> ORGANISM: Unknown
192 <220> FEATURE:
193 <223> OTHER INFORMATION: unknown Conus species
195 <400> SEQUENCE: 8
197 Met Lys Leu Thr Cys Val Val Ile Val Ala Val Leu Leu Leu Thr Ala
198 1               5                   10                  15
200 Cys Gln Leu Val Thr Ala Asp Gly Ser Arg Gly Met Gln Lys His Tyr
201             20                  25                  30
203 Ala Leu Arg Ser Thr Thr Asn Leu Ser Ile Ser Ser Arg Cys Lys Pro
204         35                  40                  45
206 Pro Arg Arg Lys Cys Leu Lys Ile Lys Asp Lys Cys Cys Asn Phe Cys
207     50                  55                  60
209 Asn Thr His Leu Asn Met Cys Gly
210 65                  70
212 <210> SEQ ID NO: 9
213 <211> LENGTH: 26
214 <212> TYPE: PRT
215 <213> ORGANISM: Unknown
```

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Input Set : A:\PTO.AMC.txt
Output Set: N:\CRF3\01152002\I910082A.raw

```
217 <220> FEATURE:
218 <223> OTHER INFORMATION: unknown Conus species
220 <220> FEATURE:
221 <221> NAME/KEY: PEPTIDE
222 <222> LOCATION: (1)..(26)
223 <223> OTHER INFORMATION: Xaa at residue 3 and 4 is Pro or Hyp
226 <400> SEQUENCE: 9
228 Cys Lys Xaa Xaa Arg Arg Lys Cys Leu Lys Ile Lys Asp Lys Cys Cys
229 1               5                   10                  15
231 Asn Phe Cys Asn Thr His Leu Asn Met Cys
232             20                  25
234 <210> SEQ ID NO: 10
235 <211> LENGTH: 377
236 <212> TYPE: DNA
237 <213> ORGANISM: Unknown
239 <220> FEATURE:
240 <223> OTHER INFORMATION: unknown Conus species
242 <400> SEQUENCE: 10
243 ggatccatga aactgacgtg tgtggtgatc gtcgccgtgc tgctcctgat ggcctgtcaa      60
245 ctcgtcacag ctgatggctc cagaggtatg cacaagcatt atgccctgag gtcgaccacc     120
247 aaactctcca tgtcgactcg ctgcgcaggt ccaggaacaa tttgtcctaa tagggtatgc     180
249 tgcggttatt gcagtaaaag aacacatcta tgtcattcgc gaactggctg atcttccccc     240
251 ttctgcgctc catccttttc tgcctgagtc ctccatacct gagaatggtc atgaaccact     300
253 caacacctac tcctctggag ggcctcagaa gagctacatt gaaataaaag ccgcattaca     360
255 aaaaaaaaaa aaaaaa                                                      377
258 <210> SEQ ID NO: 11
259 <211> LENGTH: 74
260 <212> TYPE: PRT
261 <213> ORGANISM: Unknown
263 <220> FEATURE:
264 <223> OTHER INFORMATION: unknown Conus species
266 <400> SEQUENCE: 11
268 Met Lys Leu Thr Cys Val Val Ile Val Ala Val Leu Leu Leu Met Ala
269 1               5                   10                  15
271 Cys Gln Leu Val Thr Ala Asp Gly Ser Arg Gly Met His Lys His Tyr
272             20                  25                  30
274 Ala Leu Arg Ser Thr Thr Lys Leu Ser Met Ser Thr Arg Cys Ala Gly
275             35                  40                  45
277 Pro Gly Thr Ile Cys Pro Asn Arg Val Cys Cys Gly Tyr Cys Ser Lys
278     50                  55                  60
280 Arg Thr His Leu Cys His Ser Arg Thr Gly
281 65                  70
283 <210> SEQ ID NO: 12
284 <211> LENGTH: 28
285 <212> TYPE: PRT
286 <213> ORGANISM: Unknown
288 <220> FEATURE:
289 <223> OTHER INFORMATION: unknown Conus species
291 <220> FEATURE:
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PATENT APPLICATION: US/09/910,082A   TIME: 20:22:54

Input Set : A:\PTO.AMC.txt
Output Set: N:\CRF3\01152002\I910082A.raw

```
292 <221> NAME/KEY: PEPTIDE
293 <222> LOCATION: (1)..(28)
294 <223> OTHER INFORMATION: Xaa at residue 4 and 9 is Pro or Hyp; Xaa at residue 16 is
Tyr, 1
295       25I-Tyr, mono-iodo-Tyr, di-iodo-Tyr, O-sulpho-Tyr or O-phospho-Ty
296       r
299 <400> SEQUENCE: 12
301 Cys Ala Gly Xaa Gly Thr Ile Cys Xaa Asn Arg Val Cys Cys Gly Xaa
302 1               5               10                  15
304 Cys Ser Lys Arg Thr His Leu Cys His Ser Arg Thr
305             20                  25
307 <210> SEQ ID NO: 13
308 <211> LENGTH: 323
309 <212> TYPE: DNA
310 <213> ORGANISM: Conus arenatus
312 <400> SEQUENCE: 13
313 ggatccatga aactgacgtg catggtgatc atcgccgtgc tgttcctgac ggcctgtcaa    60
315 ctcattacag gtgagcagaa ggaccatgct ctgaggtcaa ctgacaaaaa ctccaagttg   120
317 actaggcagt gctcggctaa cggtggatct tgtactcgtc attttcactg ctgcagcctc   180
319 tattgcaata aagattccag tgtatgtgtg gcaacctcat acccgtgagt ggccatgaac   240
321 ccctcaatac cctctcctct ggaggcttca gaggaactgc attgaaataa aaccgcattg   300
323 caataaaaaa aaaaaaaaaa aaa                                           323
326 <210> SEQ ID NO: 14
327 <211> LENGTH: 73
328 <212> TYPE: PRT
329 <213> ORGANISM: Conus arenatus
331 <400> SEQUENCE: 14
333 Met Lys Leu Thr Cys Met Val Ile Ile Ala Val Leu Phe Leu Thr Ala
334 1               5               10                  15
336 Cys Gln Leu Ile Thr Gly Glu Gln Lys Asp His Ala Leu Arg Ser Thr
337             20                  25                  30
339 Asp Lys Asn Ser Lys Leu Thr Arg Gln Cys Ser Ala Asn Gly Gly Ser
340             35                  40                  45
342 Cys Thr Arg His Phe His Cys Cys Ser Leu Tyr Cys Asn Lys Asp Ser
343     50                  55                  60
345 Ser Val Cys Val Ala Thr Ser Tyr Pro
346 65                  70
348 <210> SEQ ID NO: 15
349 <211> LENGTH: 33
350 <212> TYPE: PRT
351 <213> ORGANISM: Conus arenatus
353 <220> FEATURE:
354 <221> NAME/KEY: PEPTIDE
355 <222> LOCATION: (1)..(33)
356 <223> OTHER INFORMATION: Xaa at residue 1 is Gln or pyro-Glu; Xaa at residue 33 is
Pro or
357       Hyp; Xaa at residue 19 and 32 is Tyr, 125I-Tyr, mono-iodo-Tyr, di
358       -iodo-Tyr, O-sulpho-Tyr or O-phospho-Tyr
361 <400> SEQUENCE: 15
363 Xaa Cys Ser Ala Asn Gly Gly Ser Cys Thr Arg His Phe His Cys Cys
364 1               5               10                  15
```

Use of n and/or Xaa has been detected in the Sequence Listing.
Review the Sequence Listing to insure a corresponding
explanation is presented in the <220> to <223> fields of
each sequence using n or Xaa.

VERIFICATION SUMMARY   DATE: 01/15/2002
PATENT APPLICATION: US/09/910,082A   TIME: 20:22:55

Input Set : **A:\PTO.AMC.txt**
Output Set: **N:\CRF3\01152002\I910082A.raw**

```
L:18 M:270 C: Current Application Number differs, Replaced Current Application No
L:18 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:93 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3
L:96 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3
L:161 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6
L:164 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6
L:228 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:301 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:363 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15
L:366 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15
L:369 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15
L:428 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:431 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:490 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21
L:493 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21
L:496 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21
L:555 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24
L:558 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24
L:618 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:646 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28
L:686 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30
L:748 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33
L:751 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33
L:810 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36
L:813 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36
L:873 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39
L:937 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42
L:940 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42
L:1000 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:45
L:1064 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:48
L:1067 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:48
L:1128 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51
L:1131 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51
L:1134 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51
L:1195 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54
L:1198 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54
L:1259 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:57
L:1262 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:57
L:1323 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:60
L:1326 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:60
L:1387 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:63
L:1390 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:63
L:1393 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:63
L:1453 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:66
L:1515 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:69
L:1518 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:69
L:1521 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:69
L:1551 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:71
```

VERIFICATION SUMMARY   DATE: 01/15/2002
PATENT APPLICATION: US/09/910,082A   TIME: 20:22:55

Input Set : **A:\PTO.AMC.txt**
Output Set: **N:\CRF3\01152002\I910082A.raw**

```
L:1599 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:74
L:1647 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:77
L:1694 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:80
L:1743 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:83
```